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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,136	01/31/2002	Akira Nakasuga	970535A	7651

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EXAMINER

HARAN, JOHN T

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/059,136

Applicant(s)

NAKASUGA ET AL.

Examiner

John T. Haran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 08/861,005.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 and 6. 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 1/31/02 and 11/14/02 have been considered by the examiner.

Priority

2. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number. The specification should be amended to say - - This application is a divisional of serial number 08/861,005, filed on 5/21/97, now U.S. Patent 6,367,070. - -.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12 and 14-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the sheet-form, curable pressure-sensitive adhesive" in line 2. There is insufficient antecedent basis for this limitation in the claim. It appear "the" should be - - a - -.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staral et al (U.S. Patent 5,897,727) in view of Crivello (U.S. Patent 4,175,973).

It is noted that Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Staral et al is directed to a curable pressure sensitive adhesive that can be used to join or bond optical elements wherein the pressure sensitive adhesive comprises a polymer obtained from the polymerization of at least one free-radically polymerizable monomer such as an (meth)acrylate, at least one cationically-polymerizable monomer such as an epoxy containing material, and a cationic photopolymerization initiator such as an onium salt (Column 9, lines 10-34; Column 11, line 49 to Column 12, line 11; Column 13, line 51). The epoxy containing material can include cyclic ethers that are polymerized by being initiated to undergo ring-opening polymerization (Column 9, lines 54-59). The curable pressure sensitive adhesive is formed by combining the components and applying sufficient thermal energy to complete polymerization of the

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free-radically polymerizable (meth)acrylate, wherein the cationic photopolymerization initiator is not affected, to form a stable pressure sensitive adhesive that upon application to a substrate can be irradiated to cure the pressure sensitive adhesive and form a structural adhesive (Column 9, lines 22-44). It is noted that the list of (meth)acrylates monomer result in high molecular weight polymers have a molecular weight of several tens of thousands to 5 million (Column 12, line 7 to Column 13, line 7).

Staral et al teaches placing the curable pressure sensitive on an electrode and then placing a color cell array on the adhesive thereby laminating the two together and that the pressure sensitive adhesive is irradiated either before or after the lamination to cure the adhesive (Column 27, lines 10 to 18). However, Staral et al is also silent toward the curing irradiation being ultraviolet light having an intensity greater than 1mW/cm² in a wavelength range exceeding 300nm. Karim et al does teach using ultraviolet light to cure, that the irradiation is between 250 and 700 nm and that intensity is one of the factors that determines the amount exposure needed to effect polymerization (Column 17, lines 7-45). Furthermore, as also noted, one skilled in the art would have readily appreciated that the particular wavelength, energy, and intensity would have depended upon the particular epoxy and cationic photoinitiator used in the pressure sensitive adhesive and that it would have been within the purview of one skilled in the art to determine the necessary combination. Additionally it is conventional when using onium salt as the cationic photoinitiator to cure an epoxy to use ultraviolet light in a wavelength above 300 nm with an intensity greater than 1 mW/cm², as shown for example in Crivello (Column 5, line 57 to Column 6, line 1). It would have been

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obvious to one of ordinary skill in the art to bond the electrode to the color array via the pressure sensitive adhesive with ultraviolet light with an intensity greater than 1mW/cm² and a wavelength range greater than 300nm in the method of Staral et al.

Regarding claim 14, Staral et al teaches the polymer being an acrylic polymer.

Regarding claim 15, Staral et al is silent towards the weight composition of the pressure sensitive adhesive, however it is taken as being within the purview of one skilled in the art to determine the weight composition and that it would depend upon the actual components used for the epoxy, acrylate, and onium salt.

Regarding claims 16-18, the limitations placed on the acrylic polymer are taken as conventional for pressure sensitive adhesive and are taken as met through the numerous possibilities listed for the polymer in Staral et al (Column 12, line 7 to Column 13, line 7).

Regarding claims 19 and 20, Staral et al teaches using onium salt as the cationic photopolymerization initiator (Column 13, line 51).

Regarding claims 21 and 22, Staral et al teaches having at least one cationically-polymerizable monomer, meaning that there could be more than one, and teaches suitable cationically polymerizable monomers include vinyl ethers as well as epoxies (Column 9, line 16; Column 11, lines 49-53). One skilled in the art would have been motivated to have two cationically polymerizable monomers and to use known monomers such as epoxies and vinyl ethers and it would have been obvious to do so. Furthermore, one skilled in the art would have readily appreciated that it would have

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been within the purview of one skilled in the art to determine the weight composition and that it would depend upon the actual epoxy and vinyl ether utilized.

7. Claims 12 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karim et al (U.S. Patent 5,721,289) in view of Crivello (U.S. Patent 4,175,973).

Karim et al is directed to a curable pressure sensitive adhesive that can be used to join or bond members wherein the pressure sensitive adhesive comprises a polymer obtained from the polymerization of at least one free-radically polymerizable monomer such as an (meth)acrylate, at least one cationically-polymerizable monomer such as an epoxy containing material, and a cationic photopolymerization initiator such as an onium salt (Column 2, lines 34-45; Column 5, line 49 to Column 6, line 12). The epoxy containing material can include cyclic ethers that are polymerized by being initiated to undergo ring-opening polymerization (Column 5, lines 54-59). The curable pressure sensitive adhesive is formed by combining the components and applying sufficient thermal energy to complete polymerization of the free-radically polymerizable (meth)acrylate, wherein the cationic photopolymerization initiator is not affected, to form a stable pressure sensitive adhesive that upon application to a substrate can be irradiated to cure the pressure sensitive adhesive and form a structural adhesive (Column 2, line 65 to Column 3, line 10). It is noted that the list of (meth)acrylates monomer result in high molecular weight polymers have a molecular weight of several tens of thousands to 5 million (Column 6, line 7 to Column 7, line 10).

Karim et al does not appear to explicitly teach, but does implicitly suggest, applying the curable pressure sensitive adhesive to a member and to then place another member on top of the adhesive and to irradiate the adhesive to cure it either before or after placing the other member on top of the adhesive. One skilled in the art would have readily appreciated that one use for the curable pressure sensitive adhesive would be to join two members and Karim et al teaches such (See examples; Column 22, line 61 to Column 23, line 5). Additionally one skilled in the art would have readily appreciated that the pressure sensitive adhesive is tacky and adheres prior to be cured but that it needs to be irradiated in order to cure the epoxy in the pressure sensitive adhesive to provide greater adhesive strength and Karim et al also teaches such (See examples; Column 25, lines 5-30). Furthermore one skilled in the art would have readily appreciated that when joining two member the pressure sensitive adhesive is cured either before or after placing the second member on the adhesive and the timing of the irradiation would depend upon the materials joined (i.e. whether they are transparent to irradiation or not). It would have been obvious to one of ordinary skill in the art to join two members together by placing the pressure sensitive adhesive on a first member and then placing a second member on the adhesive and irradiating the adhesive to cure it either before or after placing the second member in the method of Karim et al.

Karim et al is also silent toward the curing irradiation being ultraviolet light having an intensity greater than $1\text{mW}/\text{cm}^2$ in a wavelength range exceeding 300nm. Karim et al does teach using actinic bulbs (uv light) (Column 22, line 66) and that the irradiation is between 250 and 700 nm and that intensity is one of the factors that determines the

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amount exposure needed to effect polymerization (Column 18, lines 25-40).

Furthermore, as also noted, one skilled in the art would have readily appreciated that the particular wavelength, energy, and intensity would have depended upon the particular epoxy and cationic photoinitiator used in the pressure sensitive adhesive and that it would have been within the purview of one skilled in the art to determine the necessary combination. Additionally it is conventional when using onium salt as the cationic photoinitiator to cure an epoxy to use ultraviolet light in a wavelength above 300 nm with an intensity greater than 1 mW/cm², as shown for example in Crivello (Column 5, line 57 to Column 6, line 1). It would have been obvious to one of ordinary skill in the art to join two members together by placing the pressure sensitive adhesive on a first member and then placing a second member on the adhesive and irradiating the adhesive to cure it either before or after placing the second member with ultraviolet light with an intensity greater than 1mW/cm² and a wavelength range greater than 300nm in the method of Karim et al.

Regarding claim 14, Karim et al teaches the polymer being an acrylic polymer.

Regarding claim 15, Karim et al is silent towards the weight composition of the pressure sensitive adhesive, however it is taken as being within the purview of one skilled in the art to determine the weight composition and that it would depend upon the actual components used for the epoxy, acrylate, and onium salt.

Regarding claims 16-18, the limitations placed on the acrylic polymer are taken as conventional for pressure sensitive adhesive and are taken as met through the

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numerous possibilities listed for the polymer in Karim et al (Column 6, line 7 to Column 7, line 10).

Regarding claims 19 and 20, Karim et al teaches using onium salt as the cationic photopolymerization initiator (Column 2, lines 41-44).

Regarding claims 21 and 22, Karim et al teaches having at least one cationically-polymerizable monomer, meaning that there could be more than one, and teaches suitable cationically polymerizable monomers include vinyl ethers as well as epoxies (Column 2, line 40; Column 5, lines 49-53). One skilled in the art would have been motivated to have two cationically polymerizable monomers and to use known monomers such as epoxies and vinyl ethers and it would have been obvious to do so. Furthermore, one skilled in the art would have readily appreciated that it would have been within the purview of one skilled in the art to determine the weight composition and that it would depend upon the actual epoxy and vinyl ether utilized.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakasuga et al (U.S. Patent 6,376,070) is cited as being the parent application.

It is noted that although JP 01075580 was cited as an X reference on the European search report it does not teach all the features of the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(703) 305-**

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0052 or (571) 272-1217 as of 12/19/03. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read 'John T. Haran', with a stylized flourish at the end.

John T. Haran
Examiner
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